CLAIMS

1. A laminate comprising a thermoplastic polyimide layer, and a metal layer on a surface of the thermoplastic polyimide layer.

2. A laminate of Claim 1, wherein said thermoplastic polyimide layer is surface-treated by at least one treatment selected from the group consisting of a plasma treatment, a corona treatment, a coupling agent treatment, a permanganate treatment, a ultraviolet ray emitting treatment, an electron beam emitting treatment, surface treatment by colliding an abrasive at a high speed, a firing treatment, and a hydrophilization treatment.

3. A laminate of Claim 1, wherein said thermoplastic polyimide layer is surface-treated by means of an ion gun treatment.

4. A laminate of Claim 3, wherein said ion gun treatment is a treatment using argon ion.

5. A laminate of Claim 1, wherein said metal layer is formed by depositing a metal element while heating the thermoplastic polyimide layer.

6. A laminate of Claim 5, wherein a heating temperature is at least 100°C.

7. A laminate of Claim 1, 2, 3 or 4, wherein said metal layer

is an electrolessly plated layer.

8. A laminate of Claim 1, 2, 3, 4, 5 or 6, wherein said metal layer is formed by at least one method selected from the group consisting of a sputtering method, a vacuum vapor deposition method, an ion plating method, an electron beam vapor deposition method, and a chemical vapor deposition method.

9. A laminate Claim 1, 2, 3, 4, 5, 6, 7 or 8, wherein said metal layer comprises a first metal layer and a second metal layer.

10. A laminate of Claim 9, wherein said first metal layer comprises nickel, cobalt, chrome, titanium, molybdenum, tungsten, zinc, tin, indium, gold, or an alloy thereof.

11. A laminate of Claim 9 or 10, wherein said second metal layer comprises copper or an alloy thereof.

12. A laminate comprising
a non-thermoplastic polyimide layer having a thermoplastic polyimide layer on at least one face; and
a metal layer formed on at least one face of surfaces of said thermoplastic polyimide layer.

13. A laminate comprising
a thermoplastic polyimide layer and a metal layer formed on said thermoplastic polyimide layer on one surface, and an adhesive layer on

the other face.

14. A laminate comprising a thermoplastic polyimide layer and a metal layer formed on said thermoplastic polyimide layer on one surface, and a copper foil on the other face.

15. A laminate of Claim 12, 13, or 14, wherein said thermoplastic polyimide layer is surface-treated by at least one treatment selected from the group consisting of a plasma treatment, a corona treatment, a coupling agent treatment, a permanganate treatment, a ultraviolet ray emitting treatment, an electron beam emitting treatment, surface treatment by colliding an abrasive at a high speed, a firing treatment, and a hydrophilization treatment.

16. A laminate of Claim 12, 13, or 14, wherein said thermoplastic polyimide layer is surface-treated by an ion gun treatment.

17. A laminate of Claim 16, wherein said ion gun treatment is a treatment using argon ion.

18. A laminate of Claim 12, 13, or 14, wherein said metal layer is formed by depositing a metal element while heating the thermoplastic polyimide layer.

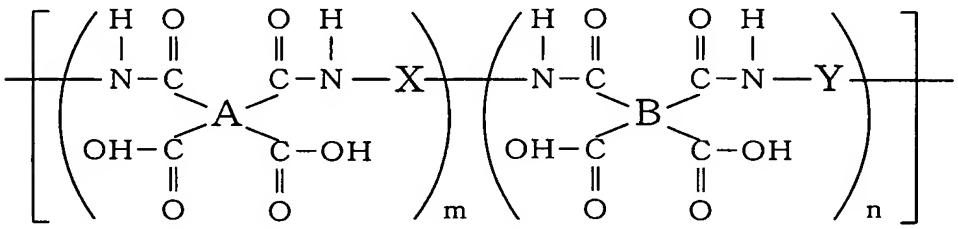
19. A laminate of Claim 18, wherein a heating temperature

is at least 100°C.

20. A laminate comprising a polyimide film and a metal layer,

wherein said polyimide film is at least two-layered structure which comprises a non-thermoplastic polyimide layer and a thermoplastic polyimide layer formed on at least one face of the non-thermoplastic polyimide layer; and said metal layer comprises a first metal layer which comprises nickel, cobalt, chrome, titanium, molybdenum, tungsten, zinc, tin, indium, gold, or an alloy thereof, and a second metal layer which comprises copper or an alloy thereof on the first metal layer.

21. A laminate of Claims 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, or 20, wherein said thermoplastic polyimide layer comprises a thermoplastic polyimide which is obtained by dehydration and ring-closing a polyamic acid represented by the following general formula (1);

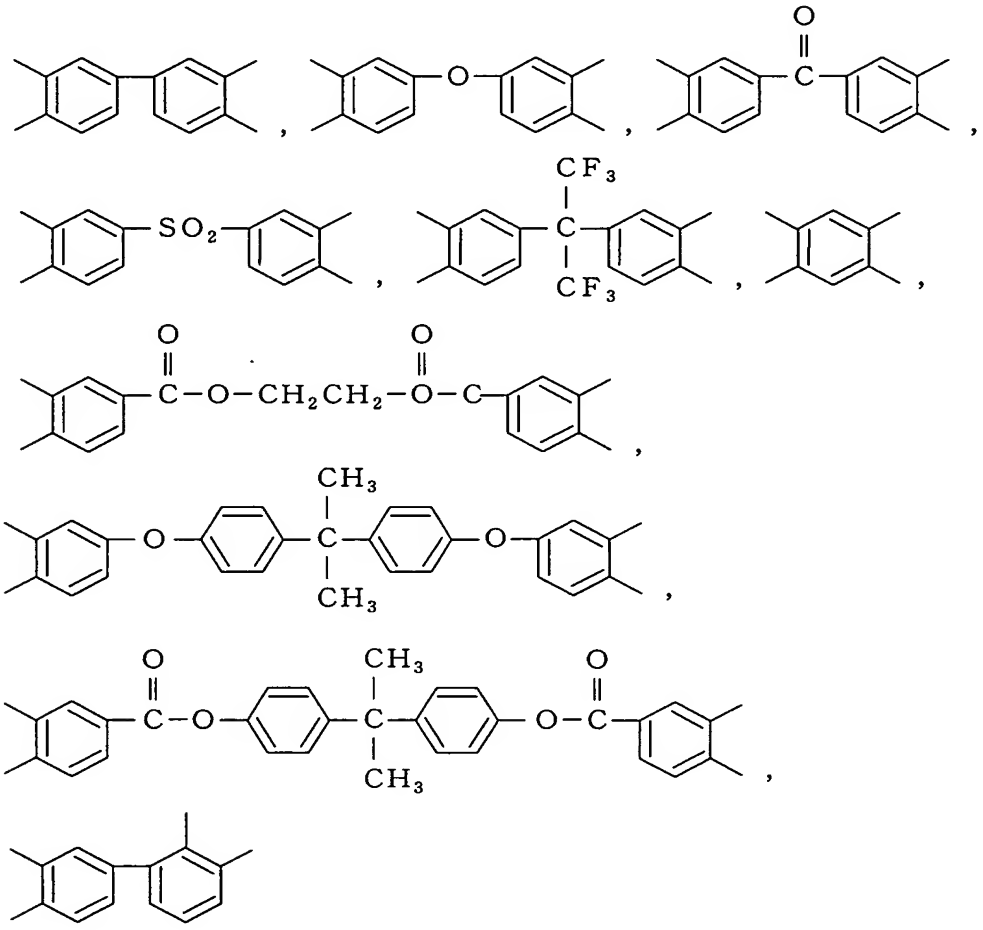


(1)

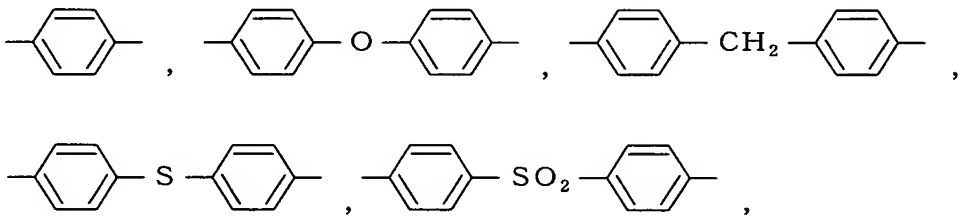
wherein A is a quadrivalent organic group selected from the following formula (2), and may be the same or different; X is a divalent organic group selected from the following formula (3), and may be the same or different; B is a quadrivalent organic group other than those represented

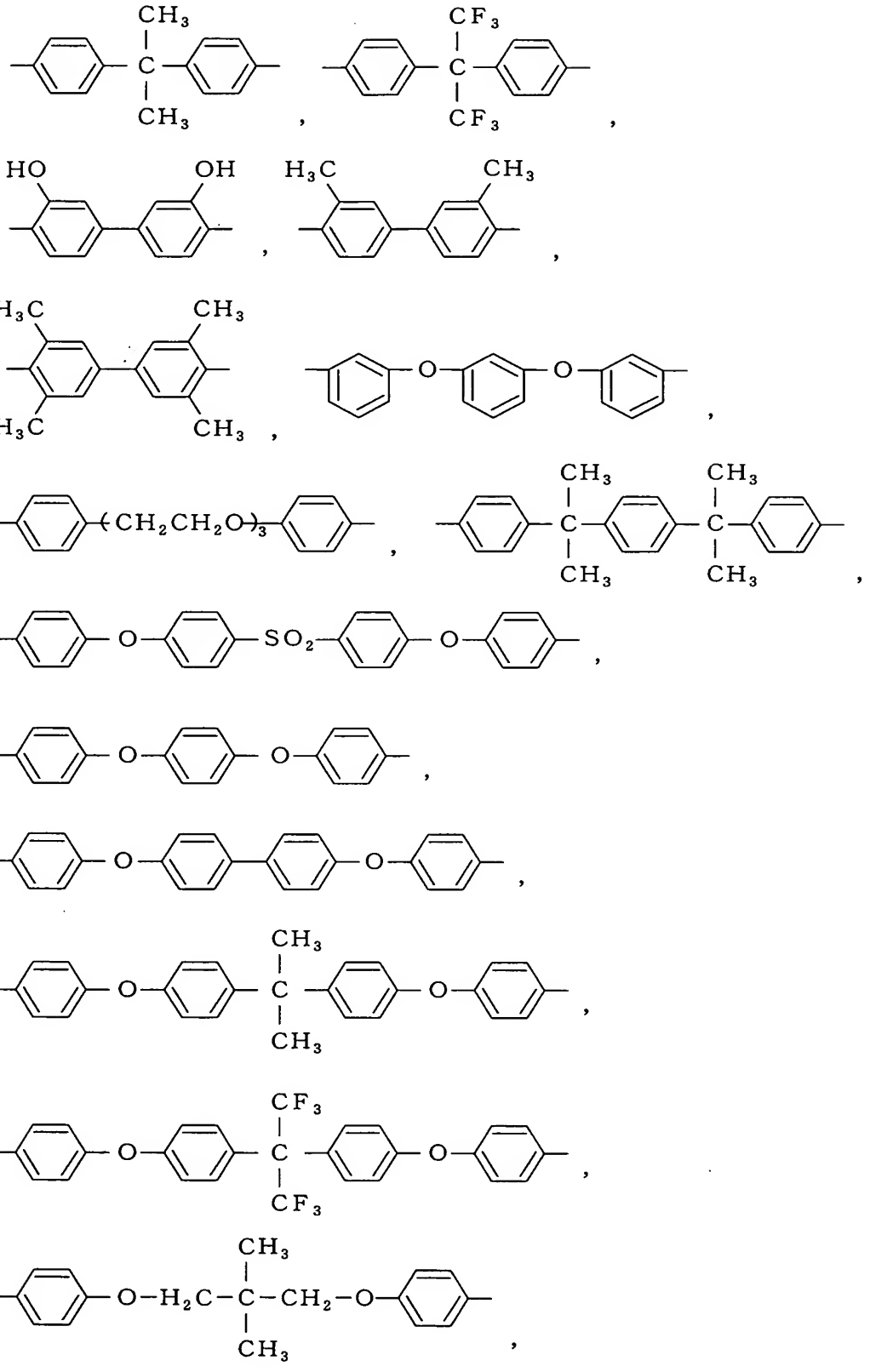
by the formula (2), and may the same or different; Y is a divalent organic group other than those represented by the formula (3), and may be the same or different. m : n is 100 : 0 to 50 : 50.)

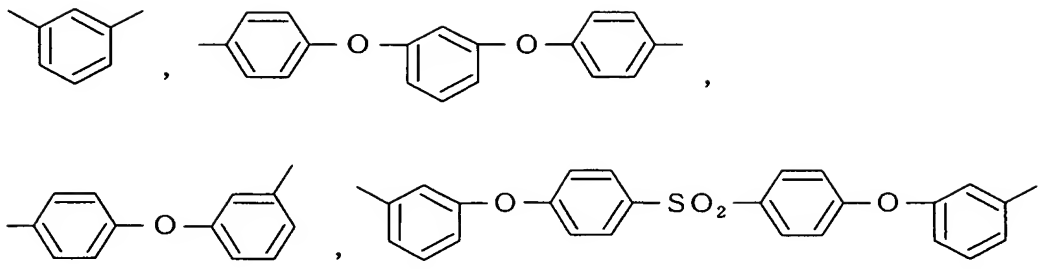
Formula (2)



Formula (3)







22. A laminate of Claim 12, 13, 14, 15, 16, 17, 18, 19 or 20, wherein thickness of said thermoplastic polyimide layer is at least 0.01 μm to at most 10 μm, and is thicker than the non-thermoplastic polyimide layer.

23. A thermoplastic polyimide film which is obtained by surface-treated by at least one treatment selected from the group consisting of a plasma treatment, a corona treatment, a coupling agent treatment, a permanganate treatment, a ultraviolet ray emitting treatment, an electron beam emitting treatment, surface treatment by colliding an abrasive at a high speed, a firing treatment, and a hydrophilization treatment.

24. A method for preparing a printed circuit board, which comprises the steps of:

forming a thermoplastic polyimide resin layer on one face of a non-thermoplastic polyimide film,

forming an adhesive layer on the other face of the non-thermoplastic polyimide film,

opposing the adhesive layer and a circuit face of a circuit-formed circuit board to each other to laminate in accordance with a

method using heating and/or pressurization, and

carrying out panel plating in accordance with a physical vapor deposition method on a thermoplastic polyimide layer surface after laminating.

25. A method for preparing a printed circuit board which comprises the steps of;

forming a thermoplastic polyimide resin layer on one face of a non-thermoplastic polyimide film,

laminating the other face of the non-thermoplastic polyimide film on a circuit-formed circuit board via an adhesive sheet in accordance with a method using heating and/or pressurization; and

carrying out panel plating in accordance with a physical vapor deposition method on a thermoplastic polyimide layer surface after laminating.